

Imperial Agricultural College of Tokio. The tables include mensuration and mechanical formulæ, and physical, chemical, and physiological memoranda and constants.

"NOTES on the Alluvial and Drift Deposits of the Trent Valley near Nottingham," is the title of a lecture to the Nottingham Naturalists' Society by Mr. James Shipman, published by Norris and Cokaigne, of Nottingham.

NO. 1 of the *Transactions* of the Cremation Society of England has been issued by Smith, Elder, and Co.; it contains a short history of the subject of cremation at home and abroad, up to the date of the sixth anniversary of the Society, on January 13 of this year.

As proof that fat is formed from albumen, the affirmation of Blondeau (*inter alia*) is sometimes cited, that in the cellars at Roquefort the albumen of the cheese kept there is changed to fat by action of the fungus present. This has been often doubted, and recently Herr Sieber has given (*Journal für praktische Chemie*, Bd. xxi. p. 203) experimental evidence of its falsity. He analysed fresh cheese, cheese that had remained one month in the cellar, and quite old cheese. His figures prove that the most marked change which cheese undergoes in ripening is the loss of water. The proportion of fat remains unaltered, if only the dry substance be considered. (The apparent increase of fat represented in the three percentage figures 27.41, 31.23, and 40.13 is due to drying.) The second essential change of cheese in ripening consists in the decomposition of albumen; the casein passes into a series of decomposition products, which are pretty similar to products of putrefaction in the first stages of putrefactive fermentation. But these analyses show no transformation of albumen into fat.

FROM a circular which has been sent us we learn that the "Studies from the Biological Laboratory of the Johns Hopkins University," will appear in parts from time to time as sufficient material accumulates; and will contain original papers upon Physiology, Animal and Vegetable Morphology, and Embryology, published by members of the University in different scientific journals, and other papers which are not printed elsewhere. The publication will be based upon the investigations made by members of the University in the biological laboratory, and in the marine zoological station of the University. Each part will contain about 100 pages, and four parts will make a volume. The first volume is now complete, and contains 519 pages, and 40 plates, besides illustrations in the text:—The following table of contents. Vol. I., part 1, contains:—The normal respiratory movements of the frog and the influence upon its respiratory centre of stimulation of the optic lobes, by H. Newell Martin. The development and regeneration of the gastric glandular epithelium during foetal life and after birth, by H. Sewall. The influence of stimulation of the midbrain upon the respiratory rhythm of the mammal, by H. Newell Martin and W. D. Booker. The botanical relations of *Trichophyton tonsurans*, by I. E. Atkinson. Preliminary observations upon the development of the marine prosobranchiate mollusca, by W. K. Brooks. With four plates and three illustrations in the text; price 1 dollar. Vol. I. part 2, contains:—On the respiratory function of the internal intercostal muscles, by H. Newell Martin and Edward Mussey Hartwell. Observations on the physiology of the spinal cord, by Isaac Ott. On the effect of two succeeding stimuli upon muscular contraction, by Henry Sewall. On the so-called heat dyspnoea, by Christian Sihler. A self feeding chronograph pen, by H. Newell Martin. Observations upon the early stages in the development of the freshwater pulmonates, by W. K. Brooks. The development of *Amblystoma punctatum*, by S. F. Clarke. With twelve plates; price 1 dollar. Vol. I. part 3 (Chesapeake Zoological Labora-

tory; scientific results of the session of 1878), contains:—Introductory, by W. K. Brooks. Land Plants found at Fort Wool, by N. B. Webster. List of animals found at Fort Wool, by P. R. Uhler. The development of Lingula, by W. K. Brooks. Lucifer typus, by Walter Faxon. The development of Gasteropods, by W. K. Brooks. The development of Squilla, by W. K. Brooks. With thirteen plates; price 1 dollar. Vol. I. part 4 contains:—The development of the American oyster, by W. K. Brooks. The acquisition and loss of a food-yolk in molluscan eggs, by W. K. Brooks. With eleven plates; price 1 dollar. The editors wish to exchange this publication with the publications of scientific societies and scientific journals. The publishers are J. Murphy and Co., Baltimore, Md., U.S.A.

THE *Revue Scientifique* for April 24 has a long essay by M. J. Thonlet, on the Mineralogy of Homer.

MR. MOSELEY asks us to state that in the report of his lecture on Deep-Sea Dredging and Life in the Deep Sea (*NATURE*, vol. xxi. p. 543), "Four-elevenths, or nearly three-fourths, should stand "eleven-fifteenths," κ.τ.λ.

THE additions to the Zoological Society's Gardens during the past week include a Cape Hunting-Dog (*Lycan pictus*) from South Africa, presented by Mr. C. Ernest Pope; a Vulpine Phalanger (*Phalangista vulpina*) from Australia, presented by Capt. Fife; a Green-Winged Trumpeter (*Psophia viridis*) from Maranham, presented by Mr. R. M. Hyde; a Blue-fronted Amazon (*Chrysotis astiva*) from South America, presented by Miss E. Bentley; a Black Scoter (*Edemia nigra*), European, presented by Mr. J. E. Harting, F.Z.S.; a Long-Eared Owl (*Asio otus*), European, presented by Capt. C. A. Lumsden; a Stump-Tailed Lizard (*Trachydosaurus rugosus*) from Australia, presented by Capt. J. Thomas; a Common Adder (*Vipera berus*), British, presented by Mr. W. H. B. Pain; a Drill Baboon (*Cynocephalus leucophæus*) from West Africa, deposited; two Common Seals (*Phoca vitulina*), British Seas, purchased; two Jameson's Gulls (*Larus jamesoni*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN

THE GREAT COMET OF 1843.—Now that the identity of the southern comet of the present year with that which excited such unusual attention in almost all parts of the globe in March, 1843, is pretty well established, it is not without interest to recall the circumstances under which the comet then made its appearance.

There were vague reports that the tail had been remarked before the perihelion passage (February 27) at Bermuda, Philadelphia, and Porto Rico on February 19, 23, and 26, and, according to Encke, the German newspapers had a notification from New York, that the comet was seen as early as February 5, and six days later was observed near β Ceti. These statements did not receive confirmation. The first definite observation of the head of the comet, and the only one previous to perihelion passage, was claimed to have been made by a Capt. Ray, and is described in a letter from Mr. Mitchell, of Nantucket, published by Prof. Peirce, the well-known American geometer. Capt. Ray is said to have been "a man of sound judgment, a very accurate observer, and correct man." He says he saw the comet nearly at midday at Concepcion, S.A.; at 11 a.m. its bearing from the sun was almost precisely east, with very little perceptible southing; "he did not measure the angle, his instruments being on board of the ship, some distance below the city; but he took great pains to estimate the apparent distance, and, being so near the sun, thinks he has done it very nearly," as Mr. Mitchell reported. The comet's "distance from the sun was only five minutes, or one-sixth of the sun's apparent diameter." It is not easy to understand how an object could have been detected without instruments, at a distance of only five minutes from the sun's limb, and it is certain that the elements which represent the observations after perihelion very closely, place the

comet at 11 a.m. at Concepcion on February 27, much further distant; according to Hubbard's parabolic orbit, the comet was then $1^{\circ} 55'$ from the sun's limb, and its hourly motion at the time was $-15^{\circ} 4'$ in right ascension and $+4^{\circ} 5'$ in declination; Prof. Peirce remarked, "the Concepcion observation, if it was made with anything of the accuracy which might be expected from Capt. Ray, exhibits a decided anomaly in the nature of the forces to which the comet was subjected during its perihelion passage," and it is only in this connection that the observation requires to be noted; there still remains the difficulty of explaining how Capt. Ray's attention could have been called to an object distant only $5'$ from the sun's limb.

On February 28 the head, with a tail several degrees in length, was observed at noonday in various parts of Italy, off the Cape of Good Hope, and at different points in the United States, and in Mexico. Bianchi, writing from Modena, states that on this day, the sky having been perfectly clear up to noon, great numbers of persons at Bologna, Parma, at the Villa de Colorno, and at Genoa, from 10h. 45m. to 11h. 45m., saw "a kind of star," a little distance from the sun to the east, which shone very vividly—"malgré la proximité apparente du soleil dont il fallait seulement se mettre à l'abri de la vue directe par l'interposition d'une muraille"—from which a bright tail extended towards the east for four or five degrees. The passengers and others on board a vessel, then off the Cape of Good Hope, remarked the comet distinctly about the same hours, and rather later, as we have mentioned, it was discovered at different places in the United States. The only observations of position made there which have any pretensions to accuracy were obtained by Mr. Clarke of Portland, Maine, who measured the distance of the nucleus from the sun's limb soon after 3 p.m. Mr. Bowring, at Chihuahua in Mexico, took with a sextant double-altitudes of comet and sun on the same afternoon. Unfortunately, notwithstanding the comet was so widely observed in Italy, its place was nowhere accurately fixed, but motion was detected, as appears from a letter of Amici to Arago, communicated by the latter to the Paris Academy. Amici wrote that his son, traversing the Place Calderini at Bologna, remarked a group of persons whose attention was directed to a comet. He saw it as a luminous mass, distant from the sun eastward more than two solar diameters. When viewed with an opera-glass it resembled a small flame, with ill-defined contours, three times as long as broad, very luminous on the side next the sun, and a little smoky to the east. At 1 p.m. its position was south of the sun's lower limb; "at 3 p.m. its motion towards the east had already produced a decided displacement."

The tail was remarked on the evening of March 1 in southern latitudes, and on March 5 precise observations of the nucleus were commenced after sunset at the Royal Observatory, Cape of Good Hope; the nucleus had been seen at Buenos Ayres two days earlier. The tail was detected at Lisbon on March 8, and the nucleus on March 12. At Montpellier M. Legrand saw the comet on March 11 at 7h. 15m., and described its light as of a "couleur rouge, très-prononcée;" this redness, he states, was equally noticeable on March 13, but on the following evening the train was white. The ruddy colour was disputed by other observers.

In those pre-telegraphic days we were without intimation of the comet's appearance before March 17, on the evening of which day in this country, as in most parts of Europe, the tail attracted general attention. It was considered at the time that the only certain glimpse of the nucleus obtained in England was by Sir John Herschel, at Hawkhurst, Kent.

THE COMET 1880 *b* (SCHABERLE, APRIL 6).—Admiral Mouchez, Director of the Observatory of Paris, has communicated to the Academy of Sciences observations of the comet detected at Ann Arbor, Michigan, made by MM. Henry and Bigourdan on April 8, 12, 16, and 18. The comet has a nucleus as bright as a star of about 11m., and a fan-shaped tail of $3'$ or $4'$. From the observations of April 8, 12, and 18, Mr. Hind has deduced the following rough approximation to the elements of the comet's orbit:—

Perihelion passage 1880, July 17^h 8675 G.M.T.

Longitude of perihelion	100 44
" ascending node	260 11
Inclination	57 28
Logarithm of perihelion distance	0.21371
Motion—retrograde.	

A calculation by MM. Holetschek and Zelbr of Vienna, founded

on observations of April 10, 11, and 13, give the date of perihelion passage, June 11, and the longitude of perihelion $122^{\circ} 43'$, but it is a case where these elements are not likely to be accurately fixed by the earlier computations.

The following positions are derived from the above orbit:—

12h. G.M.T.	R.A. h. m.	N.P.D. ° ' "	Log. Distance from Earth.	Distance from Sun.
April 30	6 14.9	22 49	0.3374	0.2872
May 2	6 15.3	24 5		
4	6 15.8	25 18	0.3453	0.2810
6	6 16.4	26 30		
8	6 17.2	27 40	0.3531	0.2750

GEOGRAPHICAL NOTES

THE medals annually given by the Royal Geographical Society for competition among the principal public schools have been awarded as follows:—Physical Geography (Examiner, Commander V. L. Cameron), Gold Medal, David Bowie, Dulwich College; Silver Medal, A. L. Humphries, Liverpool College. This medal was awarded by the Examiner to F. Taylor Sharpe, of Liverpool College, who had gained it in 1879, and was, therefore disqualified. Political Geography (Examiner, Admiral Sir Erasmus Ommanney), Gold Medal, Frederick Jas. Naylor, Dulwich College; Silver Medal, Theodore Brooks, London International College.

At the meeting of the Geographical Society on Monday evening, the Rev. C. T. Wilson, of the Church Missionary Society's Nyanza Expedition, who has just returned to England from Lake Victoria, read a paper on Uganda and its people. The three Waganda chiefs who had accompanied him and Mr. Felkin were present at the meeting. After recording his movements since 1876, Mr. Wilson gave a general description of the physical aspect, climate and products of Uganda, adding some remarks on the people, their constitutional arrangements, the tenure of land, &c. Since Capt. Speke's time there had been a considerable improvement among the Waganda, who had taken to wearing cloth, and had become very teachable, some learning to speak Arabic and read Swahili in the Roman character, at the mission station. The folk-lore and traditions of the country afford a very promising field for research, and Mr. Wilson gave an amusing instance in the reputed adventures of one Kinto with the gods. The language belongs to the Bantu group, and is an agglutinative one. It has, of course, to be reduced to writing by the missionaries, who have found twenty-four Roman letters sufficient for the purpose. Mr. Wilson stated that he had made a collection of 3,000 words, as well as of fables, stories, and songs. Reverting to the subject of geography, Mr. Wilson averred that German and other writers had given erroneous names to the lake, and that its true and only name was Nyanza or Nyanja—a term which rightly belonged only to it. In the course of a general outline of the configuration of the lake coast, Mr. Wilson dwelt on the peculiar and large group of islands—the natives say 400 in number—at the north-west corner of the lake, which are very beautiful as to scenery, but separated by difficult and intricate channels. The characteristics of the shore are at present but little known, a remark which particularly applies to the north-east corner, and generally the lake is very imperfectly mapped. As is the case with Lake Nyassa, squalls are the great danger of the Nyanza, and there are also some peculiar currents which require investigation. Mr. Felkin, who had formed one of the expedition sent up the Nile at the end of 1878, and had spent some three months at the lake, afterwards read some desultory notes relating chiefly to the homeward journey, in which he drew a terrible picture of the condition of the Egyptian equatorial provinces since the suppression of the slave-traders' rebellion.

As might have been expected, the reception of Prof. Nordenskjöld and his fellow-voyagers at Stockholm was of the most enthusiastic kind. The *Vega*, escorted by about 200 steamers, arrived at half-past ten o'clock on Saturday night. The adjacent coasts were lit up for a distance of many miles, and the city itself was splendidly illuminated. Near the landing-place a special platform was erected, where Prof. Nordenskjöld and his companions were received and congratulated by the municipal authorities. They proceeded immediately afterwards to the Royal Castle, where they were welcomed by the Kings Prof. Nordenskjöld subsequently drove through the city to hi.